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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/518,937      | 03/06/2000  | Ajay Divakaran       | ATL-042             | 8894             |

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| EXAMINER |
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NGUYEN, MAIKHANH

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| ART UNIT | PAPER NUMBER |
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2176

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07/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/518,937

Applicant(s)

DIVAKARAN ET AL.

Examiner

Maikhanh Nguyen

Art Unit

2176

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This action is responsive to the RCE filed 05/11/2007 to the original application filed 03/06/2000.

Claims 1-13 are presented for examination. Claim 1 has been amended. Claim 1 is an independent claim.

### **Request Continuation for Examination**

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/11/2007 has been entered.

### **35 U.S.C. § 112, 1<sup>st</sup> paragraph**

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

*The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.*

Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specification does not explicitly describe nor is sufficiently clear for one of ordinary skill in art to recognize the features "video object planes" (claim 1) as amended/added by Applicant in the amendment filed 05/11/2007.

The Examiner could not locate the details of the features "video object planes" in the specification.

Dependent claims 2-13 are rejected for fully incorporating the deficiencies of their base claim.

### **Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

*This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).*

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yeo et al.**

(US 5,821,945, issued 10/1998) in view of **Puri et al.**, "MPEG-4: *An object-based multimedia coding standard supporting mobile application*," June 1998, pp. 5-32.

**As to claim 1:**

Yeo teaches a method for ordering multimedia content (*see the Abstract*), comprising the steps of:

- segmenting the multimedia content to extract video object (*e.g., decomposing of the video into acts, scenes and shots; col. 2, lines 39-41*);
- extracting and associating features of the video object (*e.g., extracting a hierarchical decomposition of complex video selection*) to produce content entities (*e.g., build the graphs with ... edges*), wherein the content entities are recursive data structures (*e.g., representing the progress of the story from one scene to the next ... its structure*) comprising features (*e.g., attributes*), relations (*e.g., the relation ... a collection of one or more interrelated shots*), directed acyclic graphs (*e.g., directed graphs*) and containment set (*e.g., a directed edge connects  $V_{o,i}$  to  $V_{o,i+1}$  a directed path as the structure of the graph*) [ *col.3, line 25-col.5, line 52*];

- coding the content entities to produce directed acyclic graphs of the content entities (*col. 3, line 30-col.4, line 10*), each directed acyclic graph representing a particular interpretation of the multimedia content (*col. 3, line 25 - col.4, line 59*);
- measuring high- level attributes of each content entity (*e.g., Image attributes have served as the measurement ... for the scene transition graph building can be made at multiple levels ... In the top levels of the hierarchy, subgraph properties and temporal structure, such as discovering repeated self-loops and subgraph isomorphism, can be explored to further condense the graph; col. 9, lines 42-67*);
- assigning the measured high- level attributes to each corresponding content entity in the directed acyclic graphs to order the content entities of the multimedia content (*col.5, line 64-col.6, line 21*); and
- comparing the ordered content entities in a plurality of the directed acyclic graphs to determined similar interpretations of the multimedia content (*e.g., A hierarchical scene transition graph offers a better organization of video content ... by measures of similarity ... for the content structure of the video; col. 5, line 65-col. 6, line 21*). It is noted that hierarchical scene transition graph (HSTG) ... is a collection of directed graphs (*col.3, lines 42-67*).

Yeo, however, does not specifically teach video object planes.

Puri teaches video object planes (*e.g., Video Object Planes 'VOP' is central to MPEG-4 video; section 4.1- video coding basis, page 12*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yeo with Puri because it would have provided the capability for coding of nature or synthetic video and audio, as well as a system for description of scenes in a truly flexible manner.

**As to claim 2:**

Yeo teaches the measured attributes include intensity attributes (*col. 7, line 35-col. 8, line 8*).

**As to claim 3:**

Yeo teaches the measure attributes include direction attributes (*col. 7, lines 13-19*).

**As to claim 4:**

Yeo teaches the measured attributes include spatial attributes and the order is spatial (*col. 9, line 42-col. 10, line 7*).

**As to claim 5:**

Yeo teaches the measured attributes include temporal attributes and the order is temporal (*col. 5, line 65-col. 6, line 21 and col.9, line 42-col.10, line 7*).

**As to claim 6:**

Yeo teaches the measured attributes are arranged in an increasing rank order (*col.5, line 65-col.6, line 11 and col.10, lines 32*).

**As to claim 7:**

Yeo teaches the measured attributes are arranged in an decreasing rank order (*col.5, line 65-col.6, line 57 and col.10, lines 32*).

**As to claim 8:**

Yeo teaches traversing the multimedia content according to the directed acyclic graph (*col.3, line 24- col.4, line 10*) and the measured attributes assigned to the content entities (*col.6, line 24-col.8, line 7*).

**As to claim 9:**

Yeo teaches summarizing the multimedia content according to the directed acyclic graph (*col.9, lines 19-42*) and the measured attributes assigned to the content entities (*col.6, line 24-col.8, line 7*).

**As to claim 10:**

Yeo teaches the multimedia content is a three dimensional video sequence (*col. 7, lines 12-19*).

**As to claim 11:**

Yeo teaches nodes of the directed acyclic graphs represent the content entities and edges represent breaks in the segmentation, and the measured attributes are associated with the corresponding edges (*col. 5, lines 37-52*).

**As to claim 12:**

Yeo teaches at least one secondary content entity is associated with a particular content entity, and wherein the secondary content entity is selected during the traversing (*col. 2, lines 35-48 and col. 6, lines 1-21*).

**As to claim 13:**

Yeo teaches a summary of the multimedia is a selected permutation of the content entities according to the associated ranks (*col. 9, lines 19-42*).

### Response to Arguments

4. Applicants' arguments filed 05/11/2007 have been fully considered but are not persuasive.

Firstly, Applicant argues that *Yeo does not extract and associate features of the video object planes to produce content entities* [Remarks, page 6].

In response, Applicant's argument is substantially directed to the amended subject matter. The amended subject matter is addressed above with respect to the discussion of independent claim 1.

Applicant further argues that *Yeo does not measure high-level attributes of each content entity* [Remarks, page 7].

In response, Yeo's teaching "*Image attributes have served as the measurement ... for the scene transition graph building can be made at multiple levels ... In the top levels of the hierarchy, subgraph properties and temporal structure, such as discovering repeated self-loops and subgraph isomorphism, can be explored to further condense the graph*" (col. 9, lines 42-67) reads-on the claimed "measure high-level attributes of each content entity".

Applicant further argues that *Yeo does not teach content entities and comparing the ordered content entities in a plurality of the directed acyclic graphs to determine similar interpretations of the multimedia content* [Remarks, page 8].

In response, after further review of the claim limitation and the Yeo reference, a different portion in the Yeo reference has been found that must be cited as it reads-on the claim limitations. Particularly, Yeo teaches content entities (*e.g.,  $E_0$  is the edge set; col. 3, line 53*) and comparing the ordered content entities in a plurality of the directed acyclic graphs to determine similar interpretations of the multimedia content (*e.g., A hierarchical scene transition graph offers a better organization of video content ... by measures of similarity ... for the content structure of the video; col. 5, line 65-col. 6, line 21*). It is noted that hierarchical scene transition graph (HSTG) ... is a collection of directed graphs (col.3, lines 42-67).

Finally, Applicant argues that Yeo does not measure temporal attributes of content entities [Remarks, page 9].

In response, Applicant is arguing the disclosure of the invention, not the claimed limitations. The limitation “measure temporal attributes of content entities” is not claimed. Claimed subject matter, not the specification is the measure of the invention. Limitations in the specification cannot be read into the claims for the purpose of avoiding

the prior art. See In re Self, 213 USPQ 1,5 (CCPA 1982); In re Priest, 199 USPQ 11, 15 (CCPA 1978). The Examiner has a *duty* and *responsibility* to the public and to Applicant to interpret the claims *as broadly as reasonably possible* during prosecution (see *In re Prater*, 56 CCPA 1381, 415 F.2d 1393, 162 USPQ 541 (1969)).

Yeo does teach measuring attributes of each content entity (*e.g., Image attributes have served as the measurement ... for the scene transition graph building can be made at multiple levels ... In the top levels of the hierarchy, subgraph properties and temporal structure, such as discovering repeated self-loops and subgraph isomorphism, can be explored to further condense the graph; col. 9, lines 42-67*).

### Conclusion

5. The prior art made of record, listed on PTO 892 provided to Applicant is considered to have relevancy to the claimed invention. Applicant should review each identified reference carefully before responding to this office action to properly advance the case in light of the prior art.

### Contact information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maikhanh Nguyen whose telephone number is (571) 272-

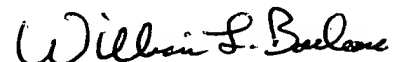
4093. The examiner can normally be reached on Monday - Friday from 9:00am – 5:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Hutton can be reached at (571) 272-4137.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Any response to this action should be mailed to:**  
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**PRIMARY EXAMINER**